FBS19a- DNA Report Wording Guidelines

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1. Scope

1.1. Analysts should follow the guidelines listed below when writing DNA reports.

2. Background

2.1. To establish the practices for documenting the examination of evidence to conform to the requirements of the Department of Forensic Sciences (DFS) Forensic Science Laboratory (FSL) *Quality Assurance Manual*, the accreditation standards under ISO/IEC 17025:2005, and any supplemental standards.

3. Safety

3.1. Not applicable

4. Materials Required

4.1. Not applicable

5. Standards and Controls

5.1. The finalized case reports are printed on Department of Forensic Science letterhead.

5.2. Each report will include the following information, unless the laboratory has valid reasons for not doing so:

5.2.1. Report Title

5.2.2. Date of Report

5.2.3. Name and Address of Testing Laboratory

5.2.4. Laboratory Case Number

5.2.5. Submitting Agency Name, Address, Case Number and Submitting Officer's Name

5.2.6. Type of offense, Incident date

5.2.7. Victim name(s), suspect name(s) if known

5.2.8. Submission date(s) of items submitted for examination

5.2.9. Brief description of examination methods

5.2.10. Test results and conclusions

5.2.11. Disposition of items

5.2.12. Analyst's name, title and signature

6. Calibration

6.1. Not applicable

7. Procedures

The function of the laboratory report is to communicate the analytical results, conclusions and interpretations of the analyst, conveying the essence of what the analyst would say if asked for his/her expert opinion in court. The conclusions in the report should be concise and worded in such a manner as to be understood by an investigator or attorney. If needed, the conclusions should clearly state appropriate qualifications or limitations of the interpretation(s).

The DNA report will follow the standard laboratory format described in the LOM – Practices for Case Documentation and Report Writing. In general, a DNA report will contain separate conclusion and results sections.

CONCLUSIONS SECTION

This section will contain a concise summary of the principle findings/conclusions of the examinations. No statement may be made in the summary that is not supported by data in the results section or referred to in other reports. Eliminations will be clearly stated. As appropriate,

population frequency data will be reported.

DNA profiles from evidence samples are most often compared to reference DNA profiles. The following are possible conclusions:

- **Inclusion ("match")** – the evidence and reference samples have the same genotypes at every loci tested.
- **Exclusion ("non-match")** – the evidence and reference samples have different genotypes at some or every loci tested.
- **Inconclusive** – the test results from the evidence sample are ambiguous making a determination of inclusion or exclusion difficult.
- **No Results** – no results were obtained from an evidence sample.

Following are examples of conclusions that may be used in a DNA Report of Examination.

1. Single Source/Major Contributor Conclusions

The following are examples for single source DNA profiles obtained from evidentiary material. These examples also apply to mixed stain samples where a clear major contributor profile is observed or can be deduced.

a. Inclusion ("match")

- For single source samples or samples with an unambiguous major contributor:

  The (primary/major) DNA profile obtained from the (sample or list of samples) matches the DNA profile obtained from (known).

- For partial results single source samples or samples with an unambiguous major contributor:

  Typing results were obtained at # of the # loci tested. (Known) cannot be excluded as the contributor/source of the DNA obtained from the (sample).

b. Exclusion ("non-match")

- For single source samples or samples with an unambiguous major contributor:

  (Known) is excluded/eliminated as the contributor/source of the DNA obtained from the (sample).

  (Known) is excluded/eliminated as the contributor of the major DNA profile obtained from the (sample).

- For partial results single source samples or samples with an unambiguous major contributor:

  Typing results were obtained at # of the # loci tested. (Known) is excluded/eliminated as the contributor/source of the DNA obtained from the (sample).

c. Inconclusive / No results

- When uninterpretable or no results are obtained:

No conclusion can be made regarding the (sample) due to an insufficient amount of DNA in the (sample).

The DNA typing results from (sample) were inconclusive.

No DNA typing results were obtained from (sample).

2. Mixture Conclusions

The following statements may be used for DNA mixtures of two or more individuals with no distinct major DNA profile. Generally a statement regarding gender and a statement regarding the number of contributors will precede the following statements.

- When the known is **included** at all loci tested:

(Known) cannot be excluded/eliminated as a contributor to the DNA mixture obtained from the (sample).

- If there are only two DNA contributors, the following statement may be appropriate:

The results are consistent with being a mixture of DNA from (known) and DNA from (known)

- When the known is **excluded**:

(Known) is excluded/eliminated as a contributor to the DNA mixture obtained from the (sample)

- When conclusions can be made regarding a **minor DNA profile**:

(Known) is excluded/eliminated as a minor contributor of the DNA obtained from the (sample).

(Known) (cannot be excluded/is excluded) as a contributor of the minor types obtained from the (sample)

Neither (known #1) nor (known #2) can be excluded as a contributor of the minor types obtained from the (sample).

The minor types (profile) obtained from this sample at X loci are consistent with the types (profile) obtained from (known).

Using # of the # loci tested, (known) cannot be excluded as a minor contributor of the DNA obtained from the (sample).

No conclusion can be made regarding the minor contributor due to an insufficient amplification of the minor component.

3. Additional Conclusions:

- When two unknowns are being compared:

The DNA obtained from (sample 1) did not originate from the same source as the DNA obtained from (sample 2).

The source of the DNA obtained from (sample 1) cannot be excluded as the source of the DNA obtained from (sample 2).

The DNA obtained from (sample 1) cannot be excluded as having originated from the same source as the DNA obtained from (sample2).

- For samples with a clear profile with only a minor 'Y' allele present at Amelogenin, this statement can be used regardless of the sample type and when a victim's standard is available:

The data indicates that DNA from more than one individual was obtained from the (sample). The major contributor of the DNA is a female and the minor contributor is a male. The primary DNA profile obtained from this sample matches the DNA profile obtained from (known). Since the only indication of a minor contributor is from the gene marker, Amelogenin, no comparison can be made between this sample and a known standard from any male.

RESULTS SECTION

This section describes the examinations performed and the examination results. The items examined are described in general terms as to how they were examined and the results of any serology/DNA tests conducted. Analytical methods will be described in general terms (e.g., "DNA extracted from the cigarette butt was amplified and typed using the AmpFℓSTR Identifiler kit.") Items will be referred to in the report by both their unique number and description (e.g., "The vaginal swab (Item 1a)…"). A statement should be made indicating which of the items received (if any) were not examined. The following are examples of results statements that may be used in a DNA Report of Examination.

If some or all of the samples listed were amplified at several or every loci:

DNA extracts isolated from the items listed above were tested using the Identifiler® PCR Amplification Kit. The samples giving results, the short tandem repeat (STR) loci tested and the types obtained for each sample are listed in the attached tables. Appropriate positive and negative controls were used concurrently throughout the analysis.

The DNA profiles reported in this case were determined by procedures that have been validated according to standards established by the Scientific Working Group on DNA Analysis Methods (SWGDAM) and adopted as Federal Standards.

For situations in which additional testing is being reported and compared to previous results:

The loci tested and the types obtained for the items listed above and the types previously reported for the items listed in the Report of Laboratory Examination dated (date) are listed in the attached tables.

Statements for full profile results (10 or more loci/excluding amelogenin):

The (sample) is a male/female profile.

Statements for full profile results with 1-2 additional minor alleles:

The (sample) is…

- … a (male/female) profile with (an) additional minor allele(s) at the __ (and __) locus (loci).
- A (male/female) major profile with additional minor alleles that include a male contributor at the __ and __ loci.

Statements for partial profiles (3-9 Loci/excluding amelogenin):

The sample is…

- … a partial male profile.
- … a partial profile.

- … a partial female profile.

Statements when only 1-2 loci are present:

The (sample) contains…

- … alleles at the __ and __ loci.
- … alleles at the __ and __ loci that includes a male contributor. (possible mixture)
- … alleles from a male contributor at the __ and __ loci. (apparent single source)

Statements when alleles are only present at amelogenin:

The (sample) contains…

- …alleles at the Amelogenin locus.
- … alleles from a male contributor at the Amelogenin locus.

Statements when a mixture is present (>4 alleles observed at any locus):

The (sample) is…

- … a mixture.
- … a mixture that includes a male contributor.
- … a mixture that includes a major component male DNA profile.
- … a mixture that includes a major component female DNA profile.
- …a mixture of at least (#) or more individuals.
- … a mixture of (#) or more including a major contributor male/female profile.

Statements when a mixture is partial:

The (sample) is…

- … a partial, mixed profile.
- … a partial, mixed profile that includes a male/female contributor.

Statements used for inconclusive results:

No results were obtained from (sample)

No interpretable results were obtained from (sample).

8. Sampling

8.1. Not applicable

9. Calculations

9.1. Not applicable

10. Uncertainty of Measurement

10.1. When quantitative results are obtained, and the significance of the value may impact the report, the uncertainty of measurement must be determined. The method used to determine the estimation of uncertainty can be found in the *FSL Quality Assurance Manual – Estimation of Uncertainty of Measurement (Section 5.4.6).*

11. Limitations

11.1. It is not possible to anticipate the nature of all potential DNA typing results, or the nature of the evidentiary samples from which they may be obtained. These guidelines do not exhaust the possible list of the results that may be encountered by the analyst nor the conclusions that the analyst may render based on his/her interpretation of those results. For those results not specifically described, conclusions should be drawn using the procedures given for the results above that are similar in concept and/or origin.

12. Documentation

12.1. FBU Report of Results

13. References

13.1. Clayton, T.M., Guest, J.L., Urquhart, A.J., and Gill, P.D. A Genetic Basis for Anomalous Band Patterns Encountered During DNA STR Profiling, *Journal of Forensic Sciences (2004) 49: 1207-1214.*

13.2. Crouse, C., Rogers, S., Amiott, E., Gibson, S., and Masibay, A. Analysis and interpretation of short tandem repeat microvarients and three banded allele patterns using multiple allele detection systems, [published erratum appears in *Journal of Forensic Sciences* (1999) May 44(3)]. *Journal of Forensic Sciences* (1999) 44: 87-94.

13.3. DNA Advisory Board. Quality Assurance Standards for Forensic DNA Testing Laboratories, *Forensic Science Communications* (2000) July 2 (3).

13.4. National Research Council. *The Evaluation of Forensic DNA Evidence,* Washington, D.C.: National Academy Press, 1996.

13.5. Technical Working Groups on DNA Analysis Methods. Guidelines for a quality assurance program for DNA analysis. *Crime Laboratory Digest* (1995) 22 (2) : 21-43.

13.6. *Forensic Science Laboratory Quality Assurance Manual* (Current Version)

13.7. *FSL Departmental Operations Manuals* (Current Versions)

13.8. *FSL Laboratory Operations Manuals* (Current Versions)